

NON-PUBLIC?: N  
ACCESSION #: 9006190115  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: VOGTLE ELECTRIC GENERATING PLANT - UNIT 2 PAGE: 1  
OF 04

DOCKET NUMBER: 05000425

TITLE: RELAY FAILURE RESULTS IN REACTOR TRIP  
EVENT DATE: 05/06/90 LER #: 90-007-00 REPORT DATE: 06/05/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: R.M. ODOM, NUCLEAR SAFETY AND TELEPHONE: (404) 826-3201  
COMPLIANCE

COMPONENT FAILURE DESCRIPTION:  
CAUSE: X SYSTEM: SB COMPONENT: RLY MANUFACTURER: P297  
REPORTABLE NPRDS: Yes

SUPPLEMENTAL REPORT EXPECTED: No

#### ABSTRACT:

On 5-6-90, at 2039 CDT, control room operators received trouble alarms indicating closure of Main Steam Isolation Valve (MSIV) 2HV-3026A and Steam Generator (SG) #3 low-low water level. An automatic reactor trip ensued. The Main Feedwater System isolated and the Auxiliary Feedwater System started as designed. Unit conditions were stabilized in Mode 3 at 2050 CDT.

The direct cause of this event was the closure of the MSIV, which resulted in the reactor trip when SG #3 reached its low-low water level setpoint. An investigation of the MSIV controls found that the air solenoid to the valve's hydraulic pump was not energized so that air pressure was not available to drive the pump motor. Further investigation revealed that the AX1 relay had failed. The AX1 relay energizes both the air supply solenoid and the hydraulic dump solenoid to

hold the MSIV open. When the AX1 relay failed, the loss of hydraulic fluid pressure to the valve caused the MSIV to close. The failure of the relay was the root cause for this event.

The failed relay was replaced and the MSIV was tested and verified to operate satisfactorily. The failed relay has been returned to the vendor for analysis.

END OF ABSTRACT

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#### A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(iv) because an unplanned actuation of the Reactor Protection System occurred.

#### B. UNIT STATUS AT TIME OF EVENT

At the time of this event, Unit 2 was operating in Mode 1 (power operation) at 100% of rated thermal power. Other than that described herein, there was no inoperable equipment which contributed to the occurrence of this event.

#### C. DESCRIPTION OF EVENT

On 5-6-90, at 2039 CDT, control room operators received trouble alarms indicating closure of Main Steam Isolation Valve (MSIV) 2HV-3026A and Steam Generator (SG) #3 low-low water level. An automatic reactor trip ensued when SG #3 reached its low-low water level setpoint. The Main Feedwater System isolated and the Auxiliary Feedwater (AFW) System started as designed. Operators initiated a steamline isolation to maintain the Reactor Coolant System (RCS) temperature. Loop 3 Atmospheric Relief Valve (ARV) 2PV-3020 opened in response to the high pressure in that loop. Unit conditions were stabilized and normal Mode 3 (Hot Standby) operation began at 2050 CDT.

The following abnormal conditions were noted during the event:

1. The Train A Main Feedwater Pump (MFP) miniflow valve did not shut, causing the MFP to continue rolling and preventing it from going on the turning gear.
2. The ARV 2PV-3020 exhibited packing leakage, requiring it to be manually isolated at the conclusion of the event.

3. Neutron flux indicator 2NI-0036 indicated offscale low during the event, requiring operators to rely on another indicator.

4. The Loop 1 Bypass Feedwater Isolation Valve (BFIV) exhibited dual indication (open and closed) requiring an operator to visually verify that it had closed.

#### D. CAUSE OF EVENT

The direct cause of this event was the closure of the MSIV, which resulted in the reactor trip when SG #3 reached its low-low water level setpoint.

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An investigation of the MSIV controls revealed that the air solenoid to the valve's hydraulic pump was not energized so that air pressure was not available to drive the pump motor. Further investigation revealed that the AX1 relay had failed. The AX1 relay energizes both the air supply solenoid and the hydraulic dump solenoid to hold the MSIV open. When the AX1 relay failed, the loss of hydraulic fluid pressure to the valve caused the MSIV to close. The failure of the relay was the root cause of this event.

The causes for the abnormal conditions noted during the event were as follows:

1. The MFP miniflow valve did not shut due to a faulty pressure switch.
2. The ARV leakage was attributed to the valve packing adjustment.
3. The neutron flux indicator failed because the compensating voltage had drifted out of adjustment.
4. The Loop 1 BFIV dual indication was caused by a limit switch mounting plate being out of its normal position.

#### E. ANALYSIS OF EVENT

The reactor trip occurred as expected when the MSIV shut. The Main Feedwater System isolated and the AFW System actuated as designed. Control room operators responded to the anomalies which arose and stabilized the unit. Based on these considerations, there was no adverse effect on plant safety or the health and safety of the

public as a result of this event.

#### F. CORRECTIVE ACTIONS

The failed relay was replaced, the MSIV was tested, and it operated satisfactorily. In addition, the failed relay has been returned to the vendor for analysis. If appropriate, additional corrective action will be taken based on the results of this analysis.

Corrective actions for the abnormal conditions noted during the event are as follows:

1. The faulty MFP miniflow valve pressure switch was repaired and the valve was restored to service.
2. After the ARV packing nuts were adjusted, the valve was tested satisfactorily and returned to service.

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3. The neutron flux indicator compensating voltage has been readjusted and the indicator restored to service.
4. The Loop 1 BFIV limit switch mounting plate was readjusted to preclude dual indication and the valve was returned to service.

#### G. ADDITIONAL INFORMATION

##### 1. Failed Components

AX1 relay manufactured by Potter & Brumfield  
Series MDR, Model 138-8

##### 2. Previous Similar Events:

LER 50-424/1988-013, dated 5-24-88.

Corrective actions for this 1988 event were directed toward a failed solenoid rather than a failed relay and were not applicable to the event of 5-6-90.

##### 3. Energy Industry Identification System Code:

Main Steam System - SB

Reactor Coolant System - AB

Main Feedwater System - SJ

Auxiliary Feedwater System - BA

Neutron Monitoring System - JD

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June 5, 1990

ELV-01727

0414

Docket No. 50-425

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT  
LICENSEE EVENT REPORT  
RELAY FAILURE RESULTS IN REACTOR TRIP

In accordance with 10 CFR 50.73, Georgia Power Company hereby submits the enclosed report related to an event which occurred on May 6, 1990.

Sincerely,

W. G. Hairston, III

WGH,III/NJS/gm

Enclosure: LER 50-425/1990-007

xc: Georgia Power Company  
Mr. C. K. McCoy  
Mr. G. Bockhold, Jr.  
Mr. R. M. Odom  
Mr. P. D. Rushton  
NORMS

U. S. Nuclear Regulatory Commission  
Mr. S. D. Ebnetter, Regional Administrator  
Mr. T. A. Reed, Licensing Project Manager, NRR

Mr. R. F. Aiello, Senior Resident Inspector, Vogtle

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